

SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-91032; File No. SR-EMERALD-2021-02)

February 1, 2021

Self-Regulatory Organizations; MIAX Emerald, LLC; Notice of Filing and Immediate Effectiveness of a Proposed Rule Change to Amend Its Fee Schedule To Adopt Port Fees and Increase Certain Network Connectivity Fees

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),¹ and Rule 19b-4 thereunder,² notice is hereby given that on January 22, 2021, MIAX Emerald, LLC (“MIAX Emerald” or “Exchange”), filed with the Securities and Exchange Commission (“Commission”) a proposed rule change as described in Items I, II, and III below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization’s Statement of the Terms of Substance of the Proposed Rule Change

The Exchange is filing a proposal to amend the MIAX Emerald Fee Schedule (the “Fee Schedule”).

The text of the proposed rule change is available on the Exchange’s website at <http://www.miaxoptions.com/rule-filings/emerald>, at MIAX’s principal office, and at the Commission’s Public Reference Room.

II. Self-Regulatory Organization’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified

¹ 15 U.S.C. 78s(b)(1).

² 17 CFR 240.19b-4.

in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to amend the Fee Schedule to: (1) adopt Port fees; and (2) increase the Exchange’s network connectivity fees for its 10 gigabit (“Gb”) ultra-low latency (“ULL”) fiber connection for Members³ and non-Members (collectively, the “Proposed Access Fees”). On September 15, 2020, the Exchange issued a Regulatory Circular which announced, among other things, that the Exchange would adopt Port fees, thereby terminating the Waiver Period⁴ for such fees, and increase the fees for its 10Gb ULL connection for Members and non-Members, beginning October 1, 2020.⁵

The Exchange initially filed this proposal on October 1, 2020.⁶ The First Proposed Rule Change was published for comment in the Federal Register on October 20, 2020.⁷ The

³ The term “Member” means an individual or organization approved to exercise the trading rights associated with a Trading Permit. Members are deemed “members” under the Exchange Act. See Exchange Rule 100.

⁴ “Waiver Period” means, for each applicable fee, the period of time from the initial effective date of the MIAX Emerald Fee Schedule until such time that the Exchange has an effective fee filing establishing the applicable fee. The Exchange will issue a Regulatory Circular announcing the establishment of an applicable fee that was subject to a Waiver Period at least fifteen (15) days prior to the termination of the Waiver Period and effective date of any such applicable fee. See the Definitions Section of the Fee Schedule.

⁵ See MIAX Emerald Regulatory Circular 2020-41 available at https://www.miaxoptions.com/sites/default/files/circular-files/MIAX_Emerald_RC_2020_41.pdf.

⁶ See Securities Exchange Act Release No. 90184 (October 14, 2020), 85 FR 66636 (October 20, 2020) (SR-EMERALD-2020-12) (the “First Proposed Rule Change”).

⁷ See id.

Exchange notes that the First Proposed Rule Change did not receive any comment letters.

Nonetheless, the Exchange withdrew the First Proposed Rule Change on November 25, 2020⁸ and resubmitted a replacement proposal.⁹ The Second Proposed Rule Change was published for comment in the Federal Register on December 14, 2020.¹⁰ The Exchange notes that the Second Proposed Rule Change did not receive any comment letters. Nonetheless, the Exchange withdrew the Second Proposed Rule Change on January 22, 2021 and resubmitted this proposal.¹¹

Port Fees

The Exchange proposes to adopt fees for “Ports”, which are used by Members and non-Members to access the Exchange. MIAX Emerald provides four Port types: (i) the Financial Information Exchange (“FIX”) Port¹², which allows Members to electronically send orders in all products traded on the Exchange; (ii) the MIAX Emerald Express Interface (“MEI”) Port¹³,

⁸ See Comment Letter from Joseph Ferraro, SVP, Deputy General Counsel, the Exchange, dated November 20, 2020, notifying the Commission that the Exchange would withdraw the First Proposed Rule Change.

⁹ See Securities Exchange Act Release No. 90600 (December 8, 2020), 85 FR 80831 (December 14, 2020) (SR-EMERALD-2020-17) (the “Second Proposed Rule Change”).

¹⁰ See id.

¹¹ See Comment Letter from Joseph Ferraro, SVP, Deputy General Counsel, the Exchange, dated January 15, 2021, notifying the Commission that the Exchange would withdraw the Second Proposed Rule Change.

¹² “FIX Port” means an interface with MIAX Emerald systems that enables the Port user to submit simple and complex orders electronically to MIAX Emerald. See the Definitions Section of the Fee Schedule.

¹³ MIAX Emerald Express Interface is a connection to the MIAX Emerald System that enables Market Makers to submit simple and complex electronic quotes to MIAX Emerald. “Full Service MEI Ports” means a port which provides Market Makers with the ability to send Market Maker simple and complex quotes, eQuotes, and quote purge messages to the MIAX Emerald System. Full Service MEI Ports are also capable of receiving administrative information. Market Makers are limited to two Full Service MEI Ports per Matching Engine. “Limited Service MEI Ports” means a port which

which allows Market Makers¹⁴ to submit electronic orders and quotes to the Exchange; (iii) the Clearing Trade Drop Port (“CTD”) Port¹⁵, which provides real-time trade clearing information to the participants to a trade on MIAX Emerald and to the participants’ respective clearing firms; and (iv) the FIX Drop Copy (“FXD”) Port¹⁶, which provides a copy of real-time trade execution, correction and cancellation information through a FIX Port to any number of FIX Ports designated by an Electronic Exchange Member (“EEM”)¹⁷ to receive such messages. The Exchange also proposes to increase the monthly fee for each additional Limited Service MEI

provides Market Makers with the ability to send simple and complex eQuotes and quote purge messages only, but not Market Maker Quotes, to the MIAX Emerald System. Limited Service MEI Ports are also capable of receiving administrative information. Market Makers initially receive two Limited Service MEI Ports per Matching Engine. See the Definitions Section of the Fee Schedule.

¹⁴ “Market Maker” refers to “Lead Market Maker” (“LMM”), “Primary Lead Market Maker” (“PLMM”) and “Registered Market Maker” (“RMM”), collectively. See Exchange Rule 100 and the Definitions Section of the Fee Schedule.

¹⁵ “CTD Port” or “Clearing Trade Drop Port” provides an Exchange Member with a real-time clearing trade updates. The updates include the Member’s clearing trade messages on a low latency, real-time basis. The trade messages are routed to a Member’s connection containing certain information. The information includes, among other things, the following: (i) trade date and time; (ii) symbol information; (iii) trade price/size information; (iv) Member type (for example, and without limitation, Market Maker, Electronic Exchange Member, Broker-Dealer); and (v) Exchange MPID for each side of the transaction, including Clearing Member MPID. See the Definitions Section of the Fee Schedule.

¹⁶ The FIX Drop Copy (“FXD”) Port is a messaging interface that will provide a copy of real-time trade execution, trade correction and trade cancellation information to FXD Port users who subscribe to the service. FXD Port users are those users who are designated by an EEM to receive the information and the information is restricted for use by the EEM. FXD Port Fees will be assessed in any month the Member is credentialed to use the FXD Port in the production environment. See Fee Schedule, Section 5)d)iv).

¹⁷ “Electronic Exchange Member” or “EEM” means the holder of a Trading Permit who is not a Market Maker. Electronic Exchange Members are deemed “members” under the Exchange Act. See Exchange Rule 100 and the Definitions Section of the Fee Schedule.

Port per matching engine for Market Makers over and above the two (2) Limited Service MEI Ports per matching engine that are allocated with the Full Service MEI Ports, as described below.

Since the launch of the Exchange, all Port fees have been waived by the Exchange in order to incentivize market participants to connect to the Exchange, except for additional Limited Service MEI Ports. However, also at launch, the Exchange introduced the structure of Port fees on its Fee Schedule (without proposing the actual fee amounts), in order to indicate to market participants that Port fees would ultimately apply upon expiration of the Waiver Period. The Exchange now proposes to assess monthly Port fees for Members and non-Members in each month the market participant is credentialed to use a Port in the production environment and based upon the number of credentialed Ports that a user is entitled to use. MIAX Emerald has Primary and Secondary Facilities and a Disaster Recovery Facility. Each type of Port provides access to all Exchange facilities for a single fee. The Exchange notes that, unless otherwise specifically set forth in the Fee Schedule, the Port fees include the information communicated through the Port. That is, unless otherwise specifically set forth in the Fee Schedule, there is no additional charge for the information that is communicated through the Port apart from what the user is assessed for each Port.¹⁸

FIX Port Fees

Since the launch of the Exchange, fees for FIX Ports have been waived for the Waiver Period. The Exchange now proposes to assess a monthly FIX Port fee to Members in each month the Member is credentialed to use a FIX Port in the production environment and based

¹⁸ An example of one such exception where there is an additional charge for information that is communicated through a Port is for certain market data products, such as ToM, AIS, and MOR, that are received via a direct connection to the Exchange. See Sections 6a)-c) of the Fee Schedule.

upon the number of credentialed FIX Ports, as follows: \$550 for the first FIX Port; \$350 for FIX Ports two through five; and \$150 for each FIX Port over five.

Below is the proposed table showing the FIX Port fees:

FIX Port Fees	MIAX Emerald Monthly Port Fees Includes Connectivity to the Primary, Secondary and Disaster Recovery Data Centers
1st FIX Port	\$550.00
FIX Ports 2 through 5	\$350.00
Additional FIX Ports over 5	\$150.00

MEI Port Fees

MIAX Emerald offers different options of MEI Ports depending on the services required by Market Makers. Since the launch of the Exchange, fees for MEI Ports have been waived for the Waiver Period. The Exchange now proposes to assess monthly MEI Port Fees to Market Makers based upon the number of classes or class volume accessed by the Market Maker. Market Makers are allocated two (2) Full Service MEI Ports¹⁹ and two (2) Limited Service MEI Ports²⁰ per Matching Engine²¹ to which they connect. The Full Service MEI Ports, Limited

¹⁹ See supra note 13.

²⁰ See id.

²¹ A “matching engine” is a part of the MIAX Emerald electronic system that processes options quotes and trades on a symbol-by-symbol basis. Some matching engines will process option classes with multiple root symbols, and other matching engines will be dedicated to one single option root symbol (for example, options on SPY will be processed by one single matching engine that is dedicated only to SPY). A particular root symbol may only be assigned to a single designated matching engine. A particular

Service MEI Ports and the additional Limited Service MEI Ports all include access to the Exchange's Primary and Secondary data centers and its Disaster Recovery center.

Specifically, the Exchange proposes to adopt MEI Port fees assessable to Market Makers based upon the number of classes or class volume accessed by the Market Maker. The Exchange proposes to adopt the following MEI Port fees: (i) \$5,000 for Market Maker Assignments in up to 5 option classes or up to 10% of option classes by volume; (ii) \$10,000 for Market Maker Assignments in up to 10 option classes or up to 20% of option classes by volume; (iii) \$14,000 for Market Maker Assignments in up to 40 option classes or up to 35% of option classes by volume; (iv) \$17,500 for Market Maker Assignments in up to 100 option classes or up to 50% of option classes by volume; and (v) \$20,500 for Market Maker Assignments in over 100 option classes or over 50% of option classes by volume up to all option classes listed on MIAX Emerald.

The Exchange also proposes to adopt new footnote "■" for its MEI Port fees that will apply to the Market Makers who fall within the following MEI Port fee levels, which represent the 4th and 5th levels of the fee table: Market Makers who have (i) Assignments in up to 100 option classes or up to 50% of option classes by volume and (ii) Assignments in over 100 option classes or over 50% of option classes by volume up to all option classes listed on MIAX Emerald. Specifically, the Exchange proposes for these monthly MEI Port tier levels, if the Market Maker's total monthly executed volume during the relevant month is less than 0.025% of the total monthly executed volume reported by OCC in the customer account type for MIAX

root symbol may not be assigned to multiple matching engines. See the Definitions Section of the Fee Schedule.

Emerald-listed option classes for that month, then the fee will be \$14,500 instead of the fee otherwise applicable to such level.

The purpose of this proposed lower monthly MEI Port fee is to provide a lower fixed cost to those Market Makers who are willing to quote the entire Exchange market (or substantial amount of the Exchange market), as objectively measured by either number of classes assigned or national ADV, but who do not otherwise execute a significant amount of volume on the Exchange. The Exchange believes that, by offering lower fixed costs to Market Makers that execute less volume, the Exchange will retain and attract smaller-scale Market Makers, which are an integral component of the option industry marketplace, but have been decreasing in number in recent years, due to industry consolidation and lower market maker profitability. Since these smaller-scale Market Makers utilize less Exchange capacity due to lower overall volume executed, the Exchange believes it is reasonable and appropriate to offer such Market Makers a lower fixed cost. The Exchange notes that other options exchanges assess certain of their fees at different rates, based upon a member's participation on that exchange,²² and, as such, this concept is not novel. The proposed changes to the MEI Port fees for Market Makers who fall within the 4th and 5th levels of the fee table are based upon a business determination of current Market Maker assignments and trading volume.

For the calculation of the monthly MEI Port Fees that apply to Market Makers, the number of classes is defined as the greatest number of classes the Market Maker was assigned to quote in on any given day within the calendar month and the class volume percentage is based on

²² See, e.g., Cboe BZX Options Exchange ("BZX Options") assesses the Participant Fee, which is a membership fee, according to a member's ADV. See Cboe BZX Options Exchange Fee Schedule under "Membership Fees". The Participant Fee is \$500 if the member ADV is less than 5000 contracts and \$1,000 if the member ADV is equal to or greater than 5000 contracts.

the total national average daily volume in classes listed on MIAX Emerald in the prior calendar quarter.²³ Newly listed option classes are excluded from the calculation of the monthly MEI Port Fee until the calendar quarter following their listing, at which time the newly listed option classes will be included in both the per class count and the percentage of total national average daily volume. The Exchange proposes to assess Market Makers the monthly MEI Port Fees based on the greatest number of classes listed on MIAX Emerald that the Market Maker was assigned to quote in on any given day within a calendar month and the applicable fee rate that is the lesser of either the per class basis or percentage of total national average daily volume measurement.

The Exchange currently charges \$50 per month for each additional Limited Service MEI Port per matching engine for Market Makers over and above the two (2) Limited Service MEI Ports per matching engine that are allocated with the Full Service MEI Ports. The Full Service MEI Ports, Limited Service MEI Ports and the additional Limited Service MEI Ports all include access to the Exchange's Primary and Secondary data centers and its Disaster Recovery center. Currently, footnote "*" in the MEI Port Fee table provides that the fees for Additional Limited Service MEI Ports are not subject to the Waiver Period. Accordingly, in connection with this proposal, the Exchange proposes to delete footnote "*" since the Exchange proposes to begin assessing MEI Port fees, which will no longer be subject to the Waiver Period. The Exchange also proposes to increase the monthly fee from \$50 to \$100 for each additional Limited Service

²³ The Exchange will use the following formula to calculate the percentage of total national average daily volume that the Market Maker assignment is for purposes of the MEI Port Fee for a given month:

Market Maker assignment percentage of national average daily volume = [total volume during the prior calendar quarter in a class in which the Market Maker was assigned] / [total national volume in classes listed on MIAX in the prior calendar quarter].

MEI Port per matching engine for Market Makers over and above the two (2) Limited Service MEI Ports per matching engine that are allocated with the Full Service MEI Ports.

Below is the proposed table showing the MEI Port fees:

Monthly MIAX Emerald MEI Fees	Market Maker Assignments (the lesser of the applicable measurements below)	
	Per Class	% of National Average Daily Volume
\$5,000.00	Up to 5 Classes	Up to 10% of Classes by volume
\$10,000.00	Up to 10 Classes	Up to 20% of Classes by volume
\$14,000.00	Up to 40 Classes	Up to 35% of Classes by volume
\$17,500.00 [■]	Up to 100 Classes	Up to 50% of Classes by volume
\$20,500.00 [■]	Over 100 Classes	Over 50% of Classes by volume up to all Classes listed on MIAX Emerald

- For these Monthly MIAX Emerald MEI Port tier levels, if the Market Maker’s total monthly executed volume during the relevant month is less than 0.025% of the total monthly executed volume reported by OCC in the customer account type for MIAX Emerald-listed option classes for that month, then the fee will be \$14,500 instead of the fee otherwise applicable to such level.

Purge Port Fees

The Exchange also offers Market Makers the ability to request and be allocated two (2) Purge Ports²⁴ per Matching Engine to which it connects. Purge Ports provide Market Makers with the ability to send quote purge messages to the MIAX Emerald System. Purge Ports are not capable of sending or receiving any other type of messages or information. Since the launch of the Exchange, fees for Purge Ports have been waived for the Waiver Period. The Exchange now proposes to amend its Fee Schedule to adopt fees for Purge Ports. For each month in which the MIAX Emerald Market Maker has been credentialed to use Purge Ports in the production environment and has been assigned to quote in at least one class, the Exchange proposes to assess the MIAX Emerald Market Maker a flat fee \$1,500, regardless of the number of Purge Ports allocated to the MIAX Emerald Market Maker.

CTD Port Fees

The Exchange proposes to assess a CTD Port fee as a monthly fixed amount, not tied to transacted volume of the Member. This fixed fee structure is the same structure in place at Nasdaq PHLX with respect to the proposed CTD Port Fees.²⁵ Since the launch of the Exchange, CTD Port Fees have been waived for the Waiver Period. CTD provides Exchange members with real-time clearing trade updates. The updates include the Member's clearing trade messages on a low latency, real-time basis. The trade messages are routed to a Member's connection containing certain information. The information includes, among other things, the following: (i) trade date and time; (ii) symbol information; (iii) trade price/size information; (iv) Member type

²⁴ "Purge Ports" provide Market Makers with the ability to send quote purge messages to the MIAX Emerald System. Purge Ports are not capable of sending or receiving any other type of messages or information. See the Definitions Section of the Fee Schedule.

²⁵ See Nasdaq PHLX Pricing Schedule, Options 7, Section 9, Other Member Fees, B. Port Fees.

(for example, and without limitation, Market Maker, Electronic Exchange Member, Broker-Dealer); (v) Exchange Member Participant Identifier (“MPID”) for each side of the transaction, including Clearing Member MPID; and (vi) strategy specific information for complex transactions. CTD Port fees will be assessed in any month the Member is credentialed to use the CTD Port in the production environment. The Exchange proposes to assess a CTD Port fee of \$450 per month.

Below is the proposed table for the CTD Port fees:

Description	Monthly Fee
Real-Time CTD Information	\$450.00

FXD Port Fee

The Exchange proposes to assess an FXD Port Fee as a monthly fixed amount, not tied to transacted volume of the Member. This fixed fee structure is the same structure in place at Nasdaq PHLX with respect to FXD Port Fees.²⁶ Since the launch of the Exchange, FXD Port Fees have been waived for the Waiver Period. FXD is a messaging interface that will provide a copy of real-time trade execution, trade correction and trade cancellation information to FXD Port users who subscribe to the service. FXD Port users are those users who are designated by an EEM to receive the information and the information is restricted for use by the EEM. FXD Port fees will be assessed in any month the Member is credentialed to use the FXD Port in the production environment. The Exchange proposes to assess an FXD Port fee of \$500 per month.

Below is the proposed table for the FXD Port fees:

²⁶ Id.

Description	MIAX Emerald Monthly Port Fees Includes connectivity to the Primary, Secondary and Disaster Recovery Data Centers
FIX Drop Copy Port	\$500.00

10Gb ULL Connectivity Fee

The Exchange proposes to amend Sections 5a) and b) of the Fee Schedule to increase the monthly network connectivity fees for the 10Gb ULL fiber connection, which is charged to both Members and non-Members of the Exchange for connectivity to the Exchange’s primary/secondary facility. The Exchange offers to both Members and non-Members two bandwidth alternatives for connectivity to the Exchange, to its primary and secondary facilities, consisting of a 1Gb fiber connection and a 10Gb ULL fiber connection. The 10Gb ULL offering uses an ultra-low latency switch, which provides faster processing of messages sent to it in comparison to the switch used for the other types of connectivity. The Exchange now proposes to increase its monthly network connectivity fee for its 10Gb ULL connection to \$10,000 for Members and non-Members.

* * * * *

MIAX Emerald believes that exchanges, in setting fees of all types, should meet very high standards of transparency to demonstrate why each new fee or fee increase meets the requirements of the Act that fees be reasonable, equitably allocated, not unfairly discriminatory, and not create an undue burden on competition among members and markets. MIAX Emerald believes this high standard is especially important when an exchange imposes various access fees for market participants to access an exchange’s marketplace. MIAX Emerald deems Port fees

and Connectivity fees to be access fees, and that Ports and Connectivity are inextricably linked components of the network. Accordingly, the Exchange believes that it is reasonable and appropriate that the costs and revenues for both should be considered together, as the services associated with connectivity and ports are linked pieces of the network's infrastructure, both of which are necessary for a market participant to access and use the trading System of the Exchange. Finally, both Connectivity fee and Port fee revenue are consolidated into a single line item ("Access Fees") on the Exchange's financial statements. The Exchange believes that it is important to demonstrate that these fees are based on its costs to provide access to the Exchange's network and reasonable business needs. Accordingly, the Exchange believes the Proposed Access Fees will allow the Exchange to offset expense the Exchange has and will incur, and that the Exchange is providing sufficient transparency (as described below) into how the Exchange determined to charge such fees. Accordingly, the Exchange is providing an analysis of its revenues, costs, and profitability associated with the Proposed Access Fees. This analysis includes information regarding its methodology for determining the costs and revenues associated with the Proposed Access Fees.

In order to determine the Exchange's costs associated with providing the Proposed Access Fees, the Exchange conducted an extensive cost review in which the Exchange analyzed every expense item in the Exchange's general expense ledger to determine whether each such expense relates to the Proposed Access Fees, and, if such expense did so relate, what portion (or percentage) of such expense actually supports the services included in the Proposed Access Fees. The sum of all such portions of expenses represents the total cost of the Exchange to provide the Proposed Access Fees. For the avoidance of doubt, no expense amount was allocated twice. The Exchange is also providing detailed information regarding the Exchange's cost allocation

methodology – namely, information that explains the Exchange’s rationale for determining that it was reasonable to allocate certain expenses described in this filing towards the total cost to the Exchange to provide the Proposed Access Fees.

In order to determine the Exchange’s projected revenues associated with providing the Proposed Access Fees, the Exchange analyzed the number of Members and non-Members currently utilizing the Exchange’s services associated with the Proposed Access Fees, and, utilizing a recent monthly billing cycle representative of 2020 monthly revenue, extrapolated annualized revenue on a going-forward basis. The Exchange does not believe it is appropriate to factor into its analysis future revenue growth or decline into its projections for purposes of these calculations, given the uncertainty of such projections due to the continually changing access needs of market participants, discounts that can be achieved through reaching certain tiers, market participant consolidation, etc. Additionally, the Exchange similarly does not factor into its analysis future cost growth or decline.

The Exchange is presenting its revenue and expense associated with the Proposed Access Fees in this filing in a manner that is consistent with how the Exchange presents its revenue and expense in its Audited Unconsolidated Financial Statements. The Exchange’s most recent Audited Unconsolidated Financial Statement is for 2019. However, since the revenue and expense associated with the Proposed Access Fees were not in place in 2019 or for the first three quarters of 2020, the Exchange believes its 2019 Audited Unconsolidated Financial Statement is not useful for analyzing the reasonableness of the total annual revenue and costs associated with the Proposed Access Fees. Accordingly, the Exchange believes it is more appropriate to analyze the Proposed Access Fees utilizing its 2020 revenue and costs, as described herein, which utilize the same presentation methodology as set forth in the Exchange’s previously-issued Audited

Unconsolidated Financial Statements. Based on this analysis, the Exchange believes that the Proposed Access Fees are fair and reasonable because they will not result in excessive pricing or supra-competitive profit when comparing the Exchange’s total annual expense associated with providing the services associated with the Proposed Access Fees versus the total projected annual revenue the Exchange will collect for providing those services.

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On March 29, 2019, the Commission issued its Order Disapproving Proposed Rule Changes to Amend the Fee Schedule on the BOX Market LLC Options Facility to Establish BOX Connectivity Fees for Participants and Non-Participants Who Connect to the BOX Network (the “BOX Order”).²⁷ On May 21, 2019, the Commission issued the Staff Guidance on SRO Rule Filings Relating to Fees.²⁸ On December 20, 2019, the Exchange adopted Connectivity Fees in a filing utilizing a cost-based justification framework that is substantially similar to the cost-based justification framework utilized for the instant Proposed Access Fees.²⁹ Accordingly, the Exchange believes that the Proposed Access Fees are consistent with the Act because they (i) are reasonable, equitably allocated, not unfairly discriminatory, and not an undue burden on competition; (ii) comply with the BOX Order and the Guidance; (iii) are supported by evidence (including comprehensive revenue and cost data and analysis) that they are fair and reasonable because they do not result in excessive pricing or supra-competitive profit; and (iv) utilize a cost-based justification framework that is substantially similar to a

²⁷ See Securities Exchange Act Release No. 85459 (March 29, 2019), 84 FR 13363 (April 4, 2019) (SR-BOX-2018-24, SR-BOX-2018-37, and SR-BOX-2019-04).

²⁸ See Staff Guidance on SRO Rule Filings Relating to Fees (May 21, 2019), at <https://www.sec.gov/tm/staff-guidance-sro-rule-filings-fees> (the “Guidance”).

²⁹ See Securities Exchange Act Release No. 87877 (December 31, 2019), 84 FR 738 (January 7, 2020) (SR-EMERALD-2019-39).

framework previously used by the Exchange to establish Connectivity Fees. Accordingly, the Exchange believes that the Commission should find that the Proposed Fees are consistent with the Act.

The proposed rule change is immediately effective upon filing with the Commission pursuant to Section 19(b)(3)(A) of the Act.

2. Statutory Basis

The Exchange believes that its proposal to amend its Fee Schedule is consistent with Section 6(b) of the Act³⁰ in general, and furthers the objectives of Section 6(b)(4) of the Act³¹ in particular, in that it provides for the equitable allocation of reasonable dues, fees and other charges among Exchange Members and issuers and other persons using any facility or system which the Exchange operates or controls. The Exchange also believes the proposal furthers the objectives of Section 6(b)(5) of the Act³² in that it is designed to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general to protect investors and the public interest and is not designed to permit unfair discrimination between customer, issuers, brokers and dealers.

The Exchange launched trading on March 1, 2019. For the month of December 2020, the Exchange had a market share of only approximately 3.58% of the U.S. options industry.³³ The Exchange is not aware of any evidence that a market share of approximately 3.6% provides the

³⁰ 15 U.S.C. 78f(b).

³¹ 15 U.S.C. 78f(b)(4).

³² 15 U.S.C. 78f(b)(5).

³³ See The Options Clearing Corporation (“OCC”) publishes options and futures volume in a variety of formats, including daily and monthly volume by exchange, available here: <https://www.theocc.com/market-data/volume/default.jsp>.

Exchange with anti-competitive pricing power. If the Exchange were to attempt to establish unreasonable pricing, then no market participant would join or connect, and existing market participants would disconnect.

Separately, the Exchange is not aware of any reason why market participants could not simply drop their connections to an exchange (or not connect to an exchange) if an exchange were to establish prices for its non-transaction fees that, in the determination of such market participant, did not make business or economic sense for such market participant to connect to such exchange. No options market participant is required by rule, regulation, or competitive forces to be a Member of the Exchange. As evidence of the fact that market participants can and do disconnect from exchanges based on non-transaction fee pricing, R2G Services LLC (“R2G”) filed a comment letter after BOX’s proposed rule changes to increase its connectivity fees (SR-BOX-2018-24, SR-BOX-2018-37, and SR-BOX-2019-04).³⁴ The R2G Letter stated, “[w]hen BOX instituted a \$10,000/month price increase for connectivity; we had no choice but to terminate connectivity into them as well as terminate our market data relationship. The cost benefit analysis just didn’t make any sense for us at those new levels.”³⁵ Since the Exchange issued its notice for the Proposed Access Fees, one Member discontinued the use of the Exchange’s connectivity and port services as a result of the Proposed Access Fees. Accordingly, these examples show that if an exchange sets too high of a fee for connectivity and/or other non-transaction fees for its relevant marketplace, market participants can choose to disconnect from such exchange.

³⁴ See Letter from Stefano Durdic, R2G, to Vanessa Countryman, Acting Secretary, Commission, dated March 27, 2019 (the “R2G Letter”).

³⁵ See id.

The Exchange believes that its proposal is consistent with Section 6(b)(4) of the Act because the Proposed Access Fees will not result in excessive or supra-competitive profit. The costs associated with providing access to Exchange Members and non-Members, as well as the general expansion of a state-of-the-art infrastructure, are extensive, have increased year-over-year, and are projected to increase year-over-year in the future. In particular, the Exchange has experienced a material increase in its costs in 2020, in connection with a project to make its network environment more transparent and deterministic, based on customer demand. This project will allow the Exchange to enhance its network architecture with the intent of ensuring a best-in-class, transparent and deterministic trading system while maintaining its industry leading latency and throughput capabilities. In order to provide this greater amount of transparency and higher determinism, MIAX Emerald has made significant capital expenditures (“CapEx”), incurred increased ongoing operational expenditures (“OpEx”), and undertaken additional engineering research and development (“R&D”) in the following areas: (i) implementing an improved network design to ensure the minimum latency between multicast market data signals disseminated by the Exchange across the extranet switches, improving the unicast jitter profile to reduce the occurrence of message sequence inversions from Members to the Exchange quoting gateway processors, and introducing a new optical fiber network infrastructure that ensures the optical fiber path for participants within extremely tight tolerances; (ii) introducing a re-architected and engineered participant quoting gateway that ensures the delivery of messages to the match engine with absolute determinism, eliminating the message processing inversions that can occur with messages received nanoseconds apart; and (iii) designing an improved monitoring platform to better measure the performance of the network and systems at extremely tight tolerances and to provide Members with reporting on the performance of their systems. The

CapEx associated with only phase 1 of this project in 2020 was approximately \$1.85 million. This expense does not include the significant increase in employee time and other resources necessary to maintain and service this network, which expense is captured in the operating expense discussed below. This project, which results in a material increase in expense of the Exchange, is a primary driver for the increase in network connectivity fees proposed by the Exchange.

The Exchange believes the proposed increase to the 10Gb ULL connection is an equitable allocation of reasonable fees because 10Gb ULL purchasers: (1) consume the most bandwidth and resources of the network; (2) transact the vast majority of the volume on the Exchange; and (3) require the high touch network support services provided by the Exchange and its staff, including more costly network monitoring, reporting and support services, resulting in a much higher cost to the Exchange. Further, the Exchange believes the Proposed Access Fees are equitably allocated because of customer demand for an even more transparent and deterministic network, as described above, which has resulted in higher CapEx, increasingly higher OpEx, and increased costs to engineering R&D. The Proposed Access Fees are equitably allocated in this regard because the majority of customer demand is coming from purchasers of the 10Gb ULL connections, which Member and non-Member firms transact the vast majority of volume on the Exchange. Accordingly, the Exchange believes it is reasonable, equitably allocated and not unfairly discriminatory to recoup the majority of its costs associated with the project to make the network more transparent and deterministic from market participants utilizing 10Gb ULL connections on the Exchange.

The Exchange believes that the proposed increase to the 10Gb ULL fees are equitably allocated among users of the network connectivity alternatives, as the users of the 10Gb ULL

connections consume the most bandwidth and resources of the network. Specifically, the Exchange notes that these users account for approximately greater than 99% of message traffic over the network, while the users of the 1Gb connections account for approximately less than 1% of message traffic over the network. In the Exchange's experience, users of the 1Gb connections do not have a business need for the high performance network solutions required by 10Gb ULL users. The Exchange's high performance network solutions and supporting infrastructure (including employee support), provides unparalleled system throughput and the capacity to handle approximately 18 million quote messages per second. On an average day, the Exchange handles over approximately 3 billion total messages. Of those, users of the 10Gb ULL connections generate approximately 3 billion messages, and users of the 1Gb connections generate 500,000 messages. However, in order to achieve a consistent, premium network performance, the Exchange must build out and maintain a network that has the capacity to handle the message rate requirements of its most heavy network consumers. These billions of messages per day consume the Exchange's resources and significantly contribute to the overall network connectivity expense for storage and network transport capabilities. Given this difference in network utilization rate, the Exchange believes that it is reasonable, equitable, and not unfairly discriminatory that the 10Gb ULL users pay for the vast majority of the shared network resources from which all Member and non-Member users benefit, but is designed and maintained from a capacity standpoint to specifically handle the message rate and performance requirements of 10Gb ULL users.

The Exchange also believes that the connectivity fees are equitably allocated amongst users of the network connectivity alternatives, when these fees are viewed in the context of the overall trading volume on the Exchange. To illustrate, the purchasers of the 10Gb ULL

connectivity account for approximately 98% of the volume on the Exchange for the month of October 2020. This overall volume percentage (98% of total Exchange volume) is in line with the amount of network connectivity revenue collected from 10Gb ULL purchasers (99% of total Exchange connectivity revenue). For example, utilizing a recent billing cycle, Exchange Members and non-Members that purchased 10Gb ULL connections accounted for approximately 99% of the total network connectivity revenue collected by the Exchange from all connectivity alternatives; and (ii) Members and non-Members that purchased 1Gb connections accounted for approximately 1% of the revenue collected by the Exchange from all connectivity alternatives.

The Exchange further believes that the increased fee for the 10Gb ULL connection is an equitable allocation of reasonable fees as the fees for the various connectivity alternatives are directly related to the actual costs associated with providing the respective connectivity alternatives. That is, the cost to the Exchange of providing a 1Gb network connection is significantly lower than the cost to the Exchange of providing a 10Gb ULL network connection. Pursuant to its extensive cost review described above and in connection with the Exchange's new project to increase transparency and determinism, the Exchange believes that the average cost to provide a 10Gb ULL network connection is approximately 8 times more than the average cost to provide a 1Gb connection. The simple hardware and software component costs alone of a 10Gb ULL connection are not 8 times more than the 1Gb connection. Rather, it is the associated premium-product level network monitoring, reporting, and support services costs that accompany a 10Gb ULL connection which cause it to be 8 times more costly to provide than the 1Gb connection. Accordingly, the Exchange believes it is equitable to allocate those network infrastructure costs that accompany a 10Gb ULL connection to the purchasers of those connections, and not to purchasers of 1Gb connections.

The Exchange differentiates itself by offering a “premium-product” network experience, as an operator of a high performance, ultra-low latency network with unparalleled system throughput, which network can support access to three distinct options markets and multiple competing market-makers having affirmative obligations to continuously quote over 750,000 distinct trading products (per exchange), and the capacity to handle approximately 18 million quote messages per second. The “premium-product” network experience enables users of 10Gb ULL connections to receive the network monitoring and reporting services for those approximately 750,000 distinct trading products. There is a significant, quantifiable amount of R&D effort, employee compensation and benefits expense, and other expense associated with providing the high touch network monitoring and reporting services that are utilized by the 10Gb ULL connections offered by the Exchange. These value add services are fully-discussed herein, and the actual costs associated with providing these services are the basis for the differentiated amount of the fees for the various connectivity alternatives.

In order to provide more detail and to quantify the Exchange’s costs associated with providing access to the Exchange in general, the Exchange notes that there are material costs associated with providing the infrastructure and headcount to fully-support access to the Exchange. The Exchange incurs technology expense related to establishing and maintaining Information Security services, enhanced network monitoring and customer reporting, as well as Regulation SCI mandated processes, associated with its network technology. While some of the expense is fixed, much of the expense is not fixed, and thus increases as the services associated with the Proposed Access Fees increase. For example, new 10Gb ULL connections and Ports require the purchase of additional hardware to support those connections as well as enhanced monitoring and reporting of customer performance that MIAX Emerald and its

affiliates provide. Further, as the total number of all connections and Ports increase, MIAX Emerald and its affiliates need to increase their data center footprint and consume more power, resulting in increased costs charged by their third-party data center provider. Accordingly, the cost to MIAX Emerald and its affiliates is not fixed. The Exchange believes the Proposed Access Fees are reasonable in order to offset the costs to the Exchange associated with providing access to its network infrastructure.

Further, because the costs of operating its own data center are significant and not economically feasible for the Exchange at this time, the Exchange does not operate its own data centers, and instead contracts with a third-party data center provider. The Exchange notes that other competing exchange operators own/operate their data centers, which offers them greater control over their data center costs. Because those exchanges own and operate their data centers as profit centers, the Exchange is subject to additional costs. The Proposed Access Fees, which are charged for accessing the Exchange's data center network infrastructure, are directly related to the network and offset such costs.

The Exchange invests significant resources in network R&D to improve the overall performance and stability of its network. For example, the Exchange has a number of network monitoring tools (some of which were developed in-house, and some of which are licensed from third-parties), that continually monitor, detect, and report network performance, many of which serve as significant value-adds to the Exchange's Members and enable the Exchange to provide a high level of customer service. These tools detect and report performance issues, and thus enable the Exchange to proactively notify a Member (and the SIPs) when the Exchange detects a problem with a Member's connectivity. In fact, the Exchange often receives inquiries from other industry participants regarding the status of networking issues outside of the

Exchange's own network environment that are impacting the industry as a whole via the SIPs, including inquiries from regulators, because the Exchange has a superior, state-of-the-art network that, through its enhanced monitoring and reporting solutions, often detects and identifies industry-wide networking issues ahead of the SIPs. The Exchange also incurs costs associated with the maintenance and improvement of existing tools and the development of new tools.

Additionally, certain Exchange-developed network aggregation and monitoring tools provide the Exchange with the ability to measure network traffic with a much more granular level of variability. This is important as Exchange Members demand a higher level of network determinism and the ability to measure variability in terms of single digit nanoseconds. Also, routine R&D projects to improve the performance of the network's hardware infrastructure result in additional cost. In sum, the costs associated with maintaining and enhancing a state-of-the-art exchange network in the U.S. options industry is a significant expense for the Exchange that also increases year-over-year, and thus the Exchange believes that it is reasonable to offset those costs through the Proposed Access Fees. The Exchange invests in and offers a superior network infrastructure as part of its overall options exchange services offering, resulting in significant costs associated with maintaining this network infrastructure, which are directly tied to the amount of the Proposed Access Fees that must be charged to access it, in order to recover those costs.

The Exchange believes it is reasonable to consider the expense and revenue for ports and connectivity alternatives together because ports and connectivity are inextricably linked components of the network infrastructure, and that both are necessary for a market participant to access the Exchange. The various types of connectivity and port alternatives that the

Exchange offers provide a wide array of access alternatives necessary for a market participant to conduct its business using the Exchange, which is a business decision to be made by each particular type of market participant. The different types of connectivity and port alternatives allows Members to conduct their different business strategies – some Members put an emphasis on speed, while others emphasize other strategies, such as redundancy and certainty of execution. The Exchange does not require a Member to have a certain framework for accessing the Exchange, but provides various connectivity and port alternatives for each Member's distinct business lines.

The Exchange offers various types of ports with differing prices because each port accomplishes different tasks, are suited to different types of Members, and consume varying capacity amounts of the network. For instance, MEI ports allow for a higher throughput and can handle much higher quote/order rates than FIX ports. Members that are Market Makers or high frequency trading firms utilize these ports (typically coupled with 10Gb ULL connectivity) because they transact in significantly higher amounts of messages being sent to and from the Exchange, versus FIX port users, who are traditionally customers sending only orders to the Exchange (typically coupled with 1Gb connectivity). The different types of ports cater to the different types of Exchange Memberships and different capabilities of the various Exchange Members. Market Makers have quoting and other obligations that traditional customers do not. Market Makers, therefore, need ports and connections that can handle using far more of the network's capacity for message throughput, risk protections, and the amount of information that has to be assessed. Market Makers account for the vast majority of network

capacity utilization and volume executed on the Exchange, as discussed throughout.³⁶

Accordingly, the Exchange believes that it is reasonable and appropriate to charge market participants more for MEI ports versus FIX ports and other lower capacity ports.

The Exchange only has four primary sources of revenue: transaction fees, access fees (of which the Proposed Access Fees constitute the majority), regulatory fees, and market data fees. Accordingly, the Exchange must cover all of its expenses from these four primary sources of revenue.

The Exchange believes that the Proposed Access Fees are fair and reasonable because they will not result in excessive pricing or supra-competitive profit, when comparing the total annual expense that the Exchange projects to incur in connection with providing these services versus the total annual revenue that the Exchange projects to collect in connection with providing these services. For 2020³⁷, the total annual expense for providing the services associated with the Proposed Access Fees for MIAX Emerald is projected to be approximately \$9.3 million. The \$9.3 million in expense includes expense associated with providing all ports and all connectivity alternatives. The Exchange is unable to separate out its expense by connectivity alternative, as all connectivity alternatives are intricately combined in a single network infrastructure. Nevertheless, the Exchange attributes the majority of connectivity expense to the 10Gb ULL connections because the majority of network capacity is used by

³⁶ See supra page 64 (discussing how purchasers of the 10Gb ULL connectivity accounted for approximately 98% of the volume on the Exchange for the month of October 2020; 99% of total Exchange connectivity revenue; Members and non-Members that purchased 10Gb ULL connections accounted for approximately 99% of the total network connectivity revenue collected by the Exchange from all connectivity alternatives; and Members and non-Members that purchased 1Gb connections accounted for approximately 1% of the revenue collected by the Exchange from all connectivity alternatives).

³⁷ The Exchange has not yet finalized its 2020 year end results.

10Gb ULL purchasers.³⁸ The \$9.3 million in projected total annual expense is comprised of the following, all of which are directly related to the services associated with the Proposed Access Fees: (1) third-party expense, relating to fees paid by MIAX Emerald to third-parties for certain products and services; and (2) internal expense, relating to the internal costs of MIAX Emerald to provide the services associated with the Proposed Access Fees. As noted above, the Exchange believes it is more appropriate to analyze the Proposed Access Fees utilizing its 2020 revenue and costs, which utilize the same presentation methodology as set forth in the Exchange's previously-issued Audited Unconsolidated Financial Statements.³⁹ The \$9.3 million in projected total annual expense is directly related to the services associated with the Proposed Access Fees, and not any other product or service offered by the Exchange. It does not include general costs of operating matching systems and other trading technology, and no expense amount was allocated twice.

As discussed, the Exchange conducted an extensive cost review in which the Exchange analyzed every expense item in the Exchange's general expense ledger (this includes over 150 separate and distinct expense items) to determine whether each such expense relates to the services associated with the Proposed Access Fees, and, if such expense did so relate, what portion (or percentage) of such expense actually supports those services, and thus bears a relationship that is, "in nature and closeness," directly related to those services. The sum of all

³⁸ See supra note 36.

³⁹ For example, the Exchange previously noted that all third-party expense described in its prior fee filing was contained in the information technology and communication costs line item under the section titled "Operating Expenses Incurred Directly or Allocated From Parent," in the Exchange's 2019 Form 1 Amendment containing its financial statements for 2018. See Securities Exchange Act Release No. 87877 (December 31, 2019), 85 FR 738 (January 7, 2020) (SR-EMERALD-2019-39). Accordingly, the third-part expense described in this filing is attributed to the same line item for the Exchange's 2020 Form 1 Amendment, which will be filed in 2021.

such portions of expenses represents the total cost of the Exchange to provide services associated with the Proposed Access Fees.

For 2020, total third-party expense, relating to fees paid by MIAX Emerald to third-parties for certain products and services for the Exchange to be able to provide the services associated with the Proposed Access Fees, is projected to be \$1,932,519. This includes, but is not limited to, a portion of the fees paid to: (1) Equinix, for data center services, for the primary, secondary, and disaster recovery locations of the MIAX Emerald trading system infrastructure; (2) Zayo Group Holdings, Inc. (“Zayo”) for network services (fiber and bandwidth products and services) linking MIAX Emerald’s office locations in Princeton, NJ and Miami, FL to all data center locations; (3) Secure Financial Transaction Infrastructure (“SFTI”)⁴⁰, which supports connectivity and feeds for the entire U.S. options industry; (4) various other services providers (including Thompson Reuters, NYSE, Nasdaq, and Internap), which provide content, connectivity services, and infrastructure services for critical components of options connectivity and network services; and (5) various other hardware and software providers (including Dell and Cisco, which support the production environment in which Members and non-Members connect to the network to trade, receive market data, etc.).

For clarity, only a portion of all fees paid to such third-parties is included in the third-party expense herein, and no expense amount is allocated twice. Accordingly, MIAX Emerald

⁴⁰ In fact, on October 22, 2019, the Exchange was notified by SFTI that it is again raising its fees charged to the Exchange by approximately 11%, without having to show that such fee change complies with the Act by being reasonable, equitably allocated, and not unfairly discriminatory. It is unfathomable to the Exchange that, given the critical nature of the infrastructure services provided by SFTI, that its fees are not required to be rule-filed with the Commission pursuant to Section 19(b)(1) of the Act and Rule 19b-4 thereunder. See 15 U.S.C. 78s(b)(1) and 17 CFR 240.19b-4, respectively.

does not allocate its entire information technology and communication costs to the services associated with the Proposed Access Fees.

The Exchange believes it is reasonable to allocate such third-party expense described above towards the total cost to the Exchange to provide the services associated with the Proposed Access Fees. In particular, the Exchange believes it is reasonable to allocate the identified portion of the Equinix expense because Equinix operates the data centers (primary, secondary, and disaster recovery) that host the Exchange's network infrastructure. This includes, among other things, the necessary storage space, which continues to expand and increase in cost, power to operate the network infrastructure, and cooling apparatuses to ensure the Exchange's network infrastructure maintains stability. Without these services from Equinix, the Exchange would not be able to operate and support the network and provide the services associated with the Proposed Access Fees to its Members and non-Members and their customers. The Exchange did not allocate all of the Equinix expense toward the cost of providing the services associated with the Proposed Access Fees, only that portion which the Exchange identified as being specifically mapped to providing the services associated with the Proposed Access Fees, approximately 73% of the total Equinix expense (68% allocated towards the cost of providing the provision of network connectivity and 5% allocated towards the cost of providing ports). The Exchange believes this allocation is reasonable because it represents the Exchange's actual cost to provide the services associated with the Proposed Access Fees, and not any other service, as supported by its cost review.

The Exchange believes it is reasonable to allocate the identified portion of the Zayo expense because Zayo provides the internet, fiber and bandwidth connections with respect to the network, linking MIAX Emerald with its affiliates, Miami International Securities

Exchange, LLC (“MIAX”) and MIAX PEARL, LLC (“MIAX PEARL”), as well as the data center and disaster recovery locations. As such, all of the trade data, including the billions of messages each day per exchange, flow through Zayo’s infrastructure over the Exchange’s network. Without these services from Zayo, the Exchange would not be able to operate and support the network and provide the services associated with the Proposed Access Fees. The Exchange did not allocate all of the Zayo expense toward the cost of providing the services associated with the Proposed Access Fees, only the portion which the Exchange identified as being specifically mapped to providing the Proposed Access Fees, approximately 66% of the total Zayo expense (62% allocated towards the cost of providing the provision of network connectivity and 4% allocated towards the cost of providing ports). The Exchange believes this allocation is reasonable because it represents the Exchange’s actual cost to provide the services associated with the Proposed Access Fees, and not any other service, as supported by its cost review.

The Exchange believes it is reasonable to allocate the identified portions of the SFTI expense and various other service providers’ (including Thompson Reuters, NYSE, Nasdaq, and Internap) expense because those entities provide connectivity and feeds for the entire U.S. options industry, as well as the content, connectivity services, and infrastructure services for critical components of the network. Without these services from SFTI and various other service providers, the Exchange would not be able to operate and support the network and provide access to its Members and non-Members and their customers. The Exchange did not allocate all of the SFTI and other service providers’ expense toward the cost of providing the services associated with the Proposed Access Fees, only the portions which the Exchange identified as being specifically mapped to providing the services associated with the Proposed

Access Fees, approximately 94% of the total SFTI and other service providers' expense (89% allocated towards the cost of providing the provision of network connectivity and 5% allocated towards the cost of providing ports).⁴¹ The Exchange believes this allocation is reasonable because it represents the Exchange's actual cost to provide the services associated with the Proposed Access Fees.

The Exchange believes it is reasonable to allocate the identified portion of the other hardware and software provider expense because this includes costs for dedicated hardware licenses for switches and servers, as well as dedicated software licenses for security monitoring and reporting across the network. Without this hardware and software, the Exchange would not be able to operate and support the network and provide access to its Members and non-Members and their customers. The Exchange did not allocate all of the hardware and software provider expense toward the cost of providing the services associated with the Proposed Access Fees, only the portions which the Exchange identified as being specifically mapped to providing the services associated with the Proposed Access Fees, approximately 57% of the total hardware and software provider expense (54% allocated towards the cost of providing the provision of network connectivity and 3% allocated towards the cost of providing ports). The

⁴¹ The Exchange notes an increase to the SFTI and other service providers' expense percentage contained herein versus the same expense category percentage the Exchange used in its initial filing to adopt connectivity fees. See Securities Exchange Act Release No. 87877 (December 31, 2019), 85 FR 738 (January 7, 2020) (SR-EMERALD-2019-39). This is because at the time the Exchange performed its cost analysis for the initial connectivity fee filing, the Exchange was operational for only part of the year. Since that time, the Exchange has been fully operational, increased market share and number of market participants, and undertaken significant performance upgrades, resulting in increased expense. Accordingly, the Exchange believes it is appropriate to analyze its SFTI and other service providers' expense more in line with its affiliate options exchanges, MIAX and MIAX PEARL.

Exchange believes this allocation is reasonable because it represents the Exchange's actual cost to provide the services associated with the Proposed Access Fees.

For 2020, total projected internal expense, relating to the internal costs of MIAX Emerald to provide the services associated with the Proposed Access Fees, is projected to be \$7,367,259. This includes, but is not limited to, costs associated with: (1) employee compensation and benefits for full-time employees that support the services associated with the Proposed Access Fees, including staff in network operations, trading operations, development, system operations, business, as well as staff in general corporate departments (such as legal, regulatory, and finance) that support those employees and functions (including an increase as a result of the higher determinism project); (2) depreciation and amortization of hardware and software used to provide the services associated with the Proposed Access Fees, including equipment, servers, cabling, purchased software and internally developed software used in the production environment to support the network for trading; and (3) occupancy costs for leased office space for staff that provide the services associated with the Proposed Access Fees. The breakdown of these costs is more fully-described below. For clarity, only a portion of all such internal expenses are included in the internal expense herein, and no expense amount is allocated twice. Accordingly, MIAX Emerald does not allocate its entire costs contained in those items to the services associated with the Proposed Access Fees.

The Exchange believes it is reasonable to allocate such internal expense described above towards the total cost to the Exchange to provide the services associated with the Proposed Access Fees. In particular, MIAX Emerald's employee compensation and benefits expense relating to providing the services associated with the Proposed Access Fees is projected to be \$4,489,924, which is only a portion of the \$9,354,009 total projected expense

for employee compensation and benefits. The Exchange believes it is reasonable to allocate the identified portion of such expense because this includes the time spent by employees of several departments, including Technology, Back Office, Systems Operations, Networking, Business Strategy Development (who create the business requirement documents that the Technology staff use to develop network features and enhancements), Trade Operations, Finance (who provide billing and accounting services relating to the network), and Legal (who provide legal services relating to the network, such as rule filings and various license agreements and other contracts). As part of the extensive cost review conducted by the Exchange, the Exchange reviewed the amount of time spent by each employee on matters relating to the provision of services associated with the Proposed Access Fees. Without these employees, the Exchange would not be able to provide the services associated with the Proposed Access Fees to its Members and non-Members and their customers. The Exchange did not allocate all of the employee compensation and benefits expense toward the cost of the services associated with the Proposed Access Fees, only the portions which the Exchange identified as being specifically mapped to providing the services associated with the Proposed Access Fees, approximately 48% of the total employee compensation and benefits expense (39% allocated towards the cost of providing the provision of network connectivity and 9% allocated towards the cost of providing ports). The Exchange believes this allocation is reasonable because it represents the Exchange's actual cost to provide the services associated with the Proposed Access Fees, and not any other service, as supported by its cost review.

MIAX Emerald's depreciation and amortization expense relating to providing the services associated with the Proposed Access Fees is projected to be \$2,630,687, which is only a portion of the \$3,812,590 total projected expense for depreciation and amortization. The

Exchange believes it is reasonable to allocate the identified portion of such expense because such expense includes the actual cost of the computer equipment, such as dedicated servers, computers, laptops, monitors, information security appliances and storage, and network switching infrastructure equipment, including switches and taps that were purchased to operate and support the network and provide the services associated with the Proposed Access Fees. Without this equipment, the Exchange would not be able to operate the network and provide the services associated with the Proposed Access Fees to its Members and non-Members and their customers. The Exchange did not allocate all of the depreciation and amortization expense toward the cost of providing the services associated with the Proposed Access Fees, only the portion which the Exchange identified as being specifically mapped to providing the services associated with the Proposed Access Fees, approximately 69% of the total depreciation and amortization expense, as these services would not be possible without relying on such equipment (65% allocated towards the cost of providing the provision of network connectivity and 4% allocated towards the cost of providing ports). The Exchange believes this allocation is reasonable because it represents the Exchange's actual cost to provide the services associated with the Proposed Access Fees, and not any other service, as supported by its cost review.

MIAX Emerald's occupancy expense relating to providing the services associated with the Proposed Access Fees is projected to be \$246,648, which is only a portion of the \$474,323 total projected expense for occupancy. The Exchange believes it is reasonable to allocate the identified portion of such expense because such expense represents the portion of the Exchange's cost to rent and maintain a physical location for the Exchange's staff who operate and support the network, including providing the services associated with the Proposed Access Fees. This amount consists primarily of rent for the Exchange's Princeton, NJ office, as well as

various related costs, such as physical security, property management fees, property taxes, and utilities. The Exchange operates its Network Operations Center (“NOC”) and Security Operations Center (“SOC”) from its Princeton, New Jersey office location. A centralized office space is required to house the staff that operates and supports the network. The Exchange currently has approximately 150 employees. Approximately two-thirds of the Exchange’s staff are in the Technology department, and the majority of those staff have some role in the operation and performance of the services associated with the Proposed Access Fees. Without this office space, the Exchange would not be able to operate and support the network and provide the services associated with the Proposed Access Fees to its Members and non-Members and their customers. Accordingly, the Exchange believes it is reasonable to allocate the identified portion of its occupancy expense because such amount represents the Exchange’s actual cost to house the equipment and personnel who operate and support the Exchange’s network infrastructure and the services associated with the Proposed Access Fees. The Exchange did not allocate all of the occupancy expense toward the cost of providing the services associated with the Proposed Access Fees, only the portion which the Exchange identified as being specifically mapped to operating and supporting the network, approximately 52% of the total occupancy expense (48% allocated towards the cost of providing the provision of network connectivity and 4% allocated towards the cost of providing ports). The Exchange believes this allocation is reasonable because it represents the Exchange’s cost to provide the services associated with the Proposed Access Fees, and not any other service, as supported by its cost review.

The Exchange notes that a material portion of its total overall expense is allocated to the provision of services associated with the Proposed Access Fees. The Exchange believes this is

reasonable and in line, as the Exchange operates a technology-based business that differentiates itself from its competitors based on its trading systems that rely on its high performance network, resulting in significant technology expense. Over two-thirds of Exchange staff are technology-related employees. The majority of the Exchange's expense is technology-based. As described above, the Exchange has only four primary sources of fees in to recover its costs, thus the Exchange believes it is reasonable to allocate a material portion of its total overall expense towards the Proposed Access Fees.

The Exchange's monthly projected revenue for the Proposed Access Fees is based on the following projected purchases by Members and non-Members, which is based on a recent billing cycle: (i) 63 10Gb ULL connections; (ii) 14 CTD Ports; (iii) 8 FXD Ports; (iv) 113 FIX Ports; (v) 352 Limited Service MEI Ports; (vi) 37 Full Service MEI Ports;⁴² and (vii) 10 Purge Ports. As described above, the fee charged to each Market Maker for MEI Ports can vary from month to month depending on the number of classes in which the Market Maker was assigned to quote on any given day within the calendar month, and upon certain class volume percentages. The Exchange also provides a further discount for a Market Maker's MEI Port fees if the Market Maker's total monthly executed volume during the relevant month is less than 0.025% of the total monthly executed volume reported by OCC in the customer account type for MIAX Emerald-listed option classes for that month. The Exchange has at least one Member consistently quoting in the highest tier for MEI Port fees, but receiving this discount, resulting in lower revenue for the Exchange. Further, the projected revenue from FIX Port fees

⁴² The Exchange's projections included 9 firms or their affiliates purchasing Full Service MEI Ports. Of those firms, the Exchange projects that 6 firms will achieve the highest tier in the MEI Port fee table, 2 firms will achieve the lowest tier in the MEI Port fee table, and 1 firm will achieve the middle tier in the MEI Port fee table.

is subject to change from month to month depending on the number of FIX Ports purchased. Accordingly, based on current assumptions and approximations, the Exchange projects total monthly Port revenue of approximately \$251,600 and total 10Gb ULL connectivity revenue of approximately \$630,000. The Exchange notes that the port revenue projections are subject to change depending on the number of classes that Market Makers are quoting in and the tiers achieved. As such, the projection of \$251,600 per month is not a static number and fluctuates month to month. Further, as noted above, one Member recently dropped its connections and ports as a direct result of the introduction of the Proposed Access Fees. Accordingly, reflecting that cancellation, which took effect following the recent billing cycle, the Exchange projects annualized revenue of \$10.2 million from all connectivity alternatives and port types.⁴³

Accordingly, based on the facts and circumstances presented, the Exchange believes that its provision of the services associated with the Proposed Access Fees will not result in excessive pricing or supra-competitive profit. To illustrate, on a going-forward, fully-annualized basis, the Exchange projects that its annualized revenue for providing the services associated with the Proposed Access Fees would be approximately \$10.2 million per annum, based on a recent billing cycle. The Exchange projects that its annualized expense for providing the services associated with the Proposed Access Fees would be approximately \$9.3 million per annum. Accordingly, on a fully-annualized basis, the Exchange believes its total projected revenue for the providing the services associated with the Proposed Access Fees will

⁴³ This \$10.2 million revenue projection includes revenue from all connectivity sources, including all 10Gb ULL connections discussed above (after giving effect to the recent cancellation), two 1Gb connections (the Exchange is not increasing fees for 1Gb connections, however, those connections are included in total connectivity revenue in order to have a true comparison between all connectivity revenue and all connectivity expense), and all port types discussed above (after giving effect to the recent cancellation).

not result in excessive pricing or supra-competitive profit, as the Exchange will make only a 9% profit margin on the Proposed Access Fees (\$10.2 million – \$9.3 million = \$900,000 per annum). This profit margin does not take into account the cost of the CapEx the Exchange is projected to spend in 2020 of \$1.85 million, or the amounts the Exchange is projected to spend each year on CapEx going forward.

For the avoidance of doubt, none of the expenses included herein relating to the services associated with the Proposed Access Fees relate to the provision of any other services offered by MIAX Emerald. Stated differently, no expense amount of the Exchange is allocated twice. The Exchange notes that, with respect to the MIAX Emerald expenses included herein, those expenses only cover the MIAX Emerald market; expenses associated with the Exchange's affiliate exchanges, MIAX and MIAX PEARL, are accounted for separately and are not included within the scope of this filing. Stated differently, no expense amount of the Exchange is also allocated to MIAX or MIAX PEARL.

The Exchange believes it is reasonable, equitable and not unfairly discriminatory to allocate the respective percentages of each expense category described above towards the total cost to the Exchange of operating and supporting the network, including providing the services associated with the Proposed Access Fees because the Exchange performed a line-by-line item analysis of all the expenses of the Exchange, and has determined the expenses that directly relate to operation and support of the network. Further, the Exchange notes that, without the specific third-party and internal items listed above, the Exchange would not be able to operate and support the network, including providing the services associated with the Proposed Access Fees to its Members and non-Members and their customers. Each of these expense items, including physical hardware, software, employee compensation and benefits, occupancy costs,

and the depreciation and amortization of equipment, have been identified through a line-by-line item analysis to be integral to the operation and support of the network. The Proposed Access Fees are intended to recover the Exchange's costs of operating and supporting the network. Accordingly, the Exchange believes that the Proposed Access Fee Increases are fair and reasonable because they do not result in excessive pricing or supra-competitive profit, when comparing the actual network operation and support costs to the Exchange versus the projected annual revenue from the Proposed Access Fees, including the increased amount.

The Exchange also points out that it is not seeking to recoup any of its past costs associated with the provision of any Ports during the Waiver Period. The Exchange currently has 35 Members,⁴⁴ all of whom did not pay Port fees during the Waiver Period from the time these firms all became Members of the Exchange. Further, the majority of firms that are Members of the Exchange's affiliate options exchanges, MIAX and MIAX PEARL, also became Members of those exchanges during similar Waiver Periods for the MIAX and MIAX PEARL Port fees. Accordingly, the Exchange (and MIAX and MIAX PEARL) have assumed approximately 100% of the costs associated with providing Ports for the majority of Member firms of the Exchange, MIAX, and MIAX PEARL during their respective Waiver Periods. Accordingly, the Exchange believes that it is reasonable, equitable, and not unfairly discriminatory to now adopt Port fees that are reasonably related to (and designed to recover) the Exchange's cost associated with the provision of such Ports.

⁴⁴ See <https://www.miaxoptions.com/exchange-members/emerald>.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change would place certain market participants at the Exchange at a relative disadvantage compared to other market participants or affect the ability of such market participants to compete.

Intra-Market Competition

The Exchange believes that the Proposed Access Fees do not place certain market participants at a relative disadvantage to other market participants because the Proposed Access Fees do not favor certain categories of market participants in a manner that would impose a burden on competition; rather, the allocation of the Proposed Access Fees reflects the network resources consumed by the various size of market participants – lowest bandwidth consuming members pay the least, and highest bandwidth consuming members pay the most, particularly since higher bandwidth consumption translates to higher costs to the Exchange.

Inter-Market Competition

The Exchange believes the Proposed Access Fees do not place an undue burden on competition on other SROs that is not necessary or appropriate. In particular, options market participants are not forced to connect to (and purchase market data from) all options exchanges. The Exchange had one of its member firms cancel its membership with the Exchange as a direct result of the Proposed Access Fees. The Exchange also notes that it has far less Members as compared to the much greater number of members at other options exchanges. Not only does MIAX Emerald have less than half the number of members as certain other options exchanges, but there are also a number of the Exchange's Members that do not connect directly to MIAX Emerald. There are a number of large market makers and broker-dealers that are members of other options exchange but not Members of MIAX Emerald. The Exchange is also unaware of

any assertion that its existing fee levels or the Proposed Access Fees would somehow unduly impair its competition with other options exchanges. To the contrary, if the fees charged are deemed too high by market participants, they can simply disconnect, as described above.

The Exchange operates in a highly competitive market in which market participants can readily favor one of the 15 competing options venues if they deem fee levels at a particular venue to be excessive. Based on publicly-available information, and excluding index-based options, no single exchange has more than 16% market share. Therefore, no exchange possesses significant pricing power in the execution of multiply-listed equity and ETF options order flow. For the month of December 2020, the Exchange had a market share of approximately 3.58% of executed multiply-listed equity options⁴⁵ and the Exchange believes that the ever-shifting market share among exchanges from month to month demonstrates that market participants can discontinue or reduce use of certain categories of products, or shift order flow, in response to fee changes. In such an environment, the Exchange must continually adjust its fees and fee waivers to remain competitive with other exchanges and to attract order flow to the Exchange.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

Written comments were neither solicited nor received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing rule change has become effective pursuant to Section 19(b)(3)(A)(ii) of the Act,⁴⁶ and Rule 19b-4(f)(2)⁴⁷ thereunder. At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if

⁴⁵ See supra note 33.

⁴⁶ 15 U.S.C. 78s(b)(3)(A)(ii).

⁴⁷ 17 CFR 240.19b-4(f)(2).

it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act.

Comments may be submitted by any of the following methods:

Electronic Comments:

- Use the Commission's Internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an e-mail to rule-comments@sec.gov. Please include File Number SR-EMERALD-2021-02 on the subject line.

Paper Comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-EMERALD-2021-02. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet website (<http://www.sec.gov/rules/sro.shtml>). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be

available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR-EMERALD-2021-02 and should be submitted on or before [insert date 21 days from publication in the Federal Register].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.⁴⁸

J. Matthew DeLesDernier
Assistant Secretary

⁴⁸ 17 CFR 200.30-3(a)(12).